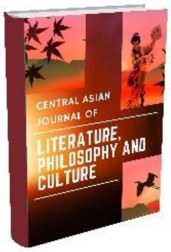


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A Model for Teaching Students to Program in Extracurricular Activities

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ANNOTATION

This article presents the problems of teaching programming to students in extracurricular activities, suggestions and recommendations on how to overcome them. Also, a model for teaching students to program examples and problems in the Python programming language in extracurricular activities is presented.

KEYWORDS: extracurricular activities, programming, Python, model, motivation, algorithm, Informatics and information technologies.

Today, 40-45 minutes of lessons are conducted in secondary schools of our country. In this case, the student may not be able to learn some of the subjects, including "Informatics and information technologies". "In order to eliminate this problem, it is necessary to improve the model of organizing students' extracurricular activities. This requires improving the forms of organizing students' extracurricular activities" [1-2].

"Informatics and information technology" is important for extracurricular education and training of schoolchildren. In this case, the lesson, which is considered as one of the stages of the educational process aimed at using the content of the educational material in the life practice of students, is held in close connection with extracurricular activities, deepens their knowledge, expands their activity methods.

In this regard, i.e., research on the problems of organizing students' extracurricular educational activities, methods of their elimination, A.B. Jonzakov, U.M. Mirsanov, M.N. Researched by scientists such as Ibodova, L.M. Karakhonova, G.V. Skladchikova, O.V. Nartova, I.N. Petrova. These scholars gave different definitions to the extracurricular activities of general secondary school students.

In particular, according to A.B. Jonzakov, extracurricular educational activity is the organization of various extracurricular activities by teachers and parents, creating the necessary conditions for the socialization of their personality [1]. According to U.M.Mirsanov, extracurricular educational activity is independent performance of various tasks related to science [2]. According to G.V.Skladchikova [3], O.V.Nartova [4], I.N.Petrova [5], extracurricular educational activity is the organization of various activities for schoolchildren by the teacher outside of school. , is to provide the necessary conditions for the socialization of their personality.

In our opinion, extracurricular activity is a process of repeating the subjects mastered by students in the classroom without the support of the teacher and improving their knowledge, skills and competences with the help of various literature, computer pedagogical software, electronic educational resources and parents.

According to the analysis of the opinions of the scientists mentioned above, extracurricular educational activity is the process of independent learning of the student.

Today, the organization of extracurricular activities for schoolchildren is becoming a serious necessity. Because the modern student is affected by the flow of information received through the global network, television, computer games and movies, and the vast social space, which does not have clear external and internal boundaries. The educational and socializing effect (not always positive) of these and other sources of information often prevails.

Also, various gadgets (computers, mobile phones, smartphones, laptops, e-books, tablets) and various social networks replace live communication with virtual ones for children. Virtual communication is an integral part of modernity today, and it is impossible to get away from it. This, in turn, has a negative impact on the education and upbringing of students. One of the ways to solve such problems is to improve the system of effective organization of students' extracurricular activities.

Organization and management of extracurricular educational activities is an important aspect of the activity of the school's pedagogical team. In this regard, according to U.M.Mirsanov, G.V.Skladchikova, O.V.Nartova, I.N.Petrova, the purpose of extracurricular activities is to develop all-round interests and abilities of students, professional self-determination, work and formation of social activity skills, education of independence and responsibility.

Therefore, it means that we need to develop new approaches to teaching schoolchildren extracurricular educational activities, that is, the subject of "Informatics and information technologies", including programming. Therefore, we have developed a model of teaching programming languages, including the Phaytn programming language, in students' extracurricular activities (see Figure 1).

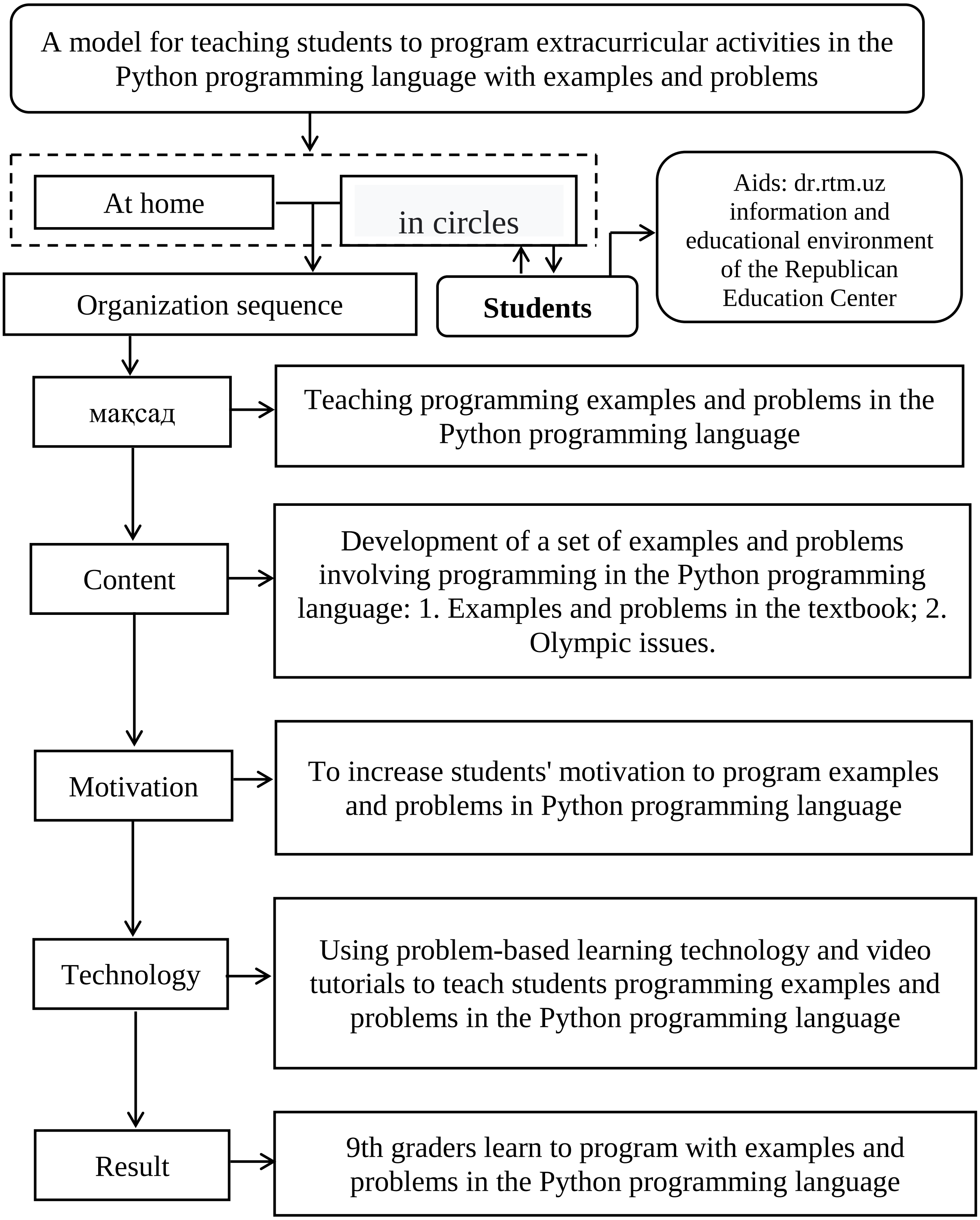


Figure 1. The model of organizing students' extracurricular educational activities.

In the first part of the recommended model, the goal is to teach programming examples and problems in Python programming language, it provides for teaching the subjects specified in the school textbook according to the qualification requirements of general secondary schools, the state educational standard, and preparing students for the Olympiad.

In the second part of the model, students independently develop a set of examples and problems that involve programming in the Python programming language.

At first, it is envisaged to program examples and problems from the textbook for students to do independently, and then Olympiad problems. The main reason for this is to increase students' positive ability to solve Olympiad problems and to form their competencies.

The third part of the model is to motivate students to program examples and problems in the Python programming language. Because it motivates students to program examples and problems in Python programming language. By increasing student motivation, it is a key issue in teaching various subjects, especially applied subjects such as programming and algorithms.

The fourth part of the model envisages the use of modern educational technologies for students to learn programming languages in independent educational activities. It is recommended to use problem-based learning technology and video tutorials to teach students how to program in Python programming language with examples and problems. In the independent study activity of the student, the problem tasks are given to them by the teacher. Video lessons are used to help students solve the given problem assignments. Through video tutorials, you will have the opportunity to see the example and problem programming several times.

The fifth part of the model shows the learning results that show the logical and algorithmic thinking of the 9th grade students in the process of learning how to program examples and problems in the Python programming language, as well as the formation of competencies related to modeling, algorithmization and programming of problems.

The use in the recommended sequence is carried out in home conditions and at home.

Students are encouraged to use video tutorials to learn programming examples and problems in the Python programming language at home. It is considered appropriate to use Python programming language video lessons from the dr.rtm.uz information and educational environment of the Republican Education Center and the global network. Using the global network for learning programming examples and problems in the Python programming language is also effective. Because the Python programming language has many open information resources designed to teach programming with examples and problems. An example of these can be cited Russian information educational environments https://inf-ege.sdamgia.ru/, https://kpolyakov.spb.ru/school/ege.htm .

The recommended educational environment includes all Python programming language tutorials, video tutorials, problem sets, problem solutions, tests, examples, and a set of practical programs that check whether the problems are solved correctly or incorrectly. With the help of these, it is possible to teach students to program problems in the Python programming language and prepare them for Olympiads.

In conclusion, we recommend to use the model developed in the framework of research in teaching students programming languages in extracurricular educational activities, including programming examples and problems in the Python programming language.

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